(1) Have cargo piping, vent piping, and refrigeration equipment that have no connections to other systems;

(2) Have valves, flanges, fittings, and accessory equipment made of steel, stainless steel, except types 416 and 442, or other material specially approved by the Commandant (CG–OES);

(3) Have valve disk faces, and other wearing parts of valves made of stainless steel containing not less than 11% chromium;

(4) Have gaskets constructed of spirally wound stainless steel with Teflon or other material specially approved by the Commandant (CG–OES);

(5) Not have asbestos, rubber, or cast iron components in the cargo containment system and piping;

(6) Not have threaded joints in cargo piping;

(7) Have a water spray system under §154.1105 that protects the above deck cargo piping; and

(8) Have a nitrogen inerting system or on board nitrogen gas storage that can inert the vapor space of an ethylene oxide cargo tank for a period of 30 days under the condition of paragraph (e) of this section.

(b) Cargo hose used for ethylene oxide must:

(1) Be specially approved by the Commandant (CG–OES); and

(2) Be marked ''For (Alkylene or Ethylene) Oxide Transfer Only.''

(c) Ethylene oxide must be maintained at less than 30 °C (86 °F).

(d) Cargo tank relief valves for tanks containing ethylene oxide must be set at 539 kPa gauge (78.2 psig) or higher.

(e) The vapor space of a cargo tank carrying ethylene oxide must be maintained at a nitrogen concentration of 45% by volume.

(f) A vessel must have a method for jettisoning ethylene oxide that meets §§154.356 and 154.1872.

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 82–063b, 48 FR 4782, Feb. 3, 1983; USCG–2014–0688, 79 FR 58285, Sept. 29, 2014]

§154.1730 Ethylene oxide: Loading and off loading.

(a) The master shall ensure that before ethylene oxide is loaded into a cargo tank:

(1) The tank is thoroughly clean, dry, and free of rust;

(2) The hold spaces are inerted with an inert gas that meets §154.1710(b)(1); and

(3) The cargo tank vapor space is inerted with nitrogen.

(b) Ethylene oxide must be off loaded by a deepwell pump or inert gas displacement.

(c) Ethylene oxide must not be carried in deck tanks.

§154.1735 Methyl acetylene-propadiene mixture.

(a) The composition of the methyl acetylene-propadiene mixture at loading must be within the following limits or specially approved by the Commandant (CG–OES):

(1) One composition is:

(i) Maximum methyl acetylene and propadiene molar ratio of 3 to 1;

(ii) Maximum combined concentration of methyl acetylene and propadiene of 65 mole percent;

(iii) Minimum combined concentration of propane, butane, and isobutane of 24 mole percent, of which at least one-third (on a molar basis) must be butanes and one-third propane; and

(iv) Maximum combined concentration of propylene and butadiene of 10 mole percent.

(2) A second composition is:

(i) Maximum methyl acetylene and propadiene combined concentration of 30 mole percent;

(ii) Maximum methyl acetylene concentration of 20 mole percent;

(iii) Maximum propadiene concentration of 20 mole percent;

(iv) Maximum propylene concentration of 45 mole percent;

(v) Maximum butadiene and butylenes combined concentration of 2 mole percent;

(vi) A minimum saturated C_4 hydrocarbon concentration of 4 mole percent; and

(vii) A minimum propane concentration of 25 mole percent.

(b) A vessel carrying a methyl acetylene-propadiene mixture must have a refrigeration system without vapor compression or have a refrigeration system with the following features:

(1) A vapor compressor that does not raise the temperature and pressure of

the vapor above 60 °C (140 °F) and 1.72 MPa gauge (250 psig) during its operation and that does not allow vapor to stagnate in the compressor while it continues to run.

(2) Discharge piping from each compressor stage or each cylinder in the same stage of a reciprocating compressor that has:

(i) Two temperature actuated shutdown switches set to operate at 60 °C (140 °F) or less;

(ii) A pressure actuated shutdown switch set to operate at 1.72 MPa gauge (250 psig) or less; and

(iii) A safety relief valve set to relieve at 1.77 MPa gauge (256 psig) or less.

(3) A relief valve that vents to a mast meeting §154.805 and that does not relieve into the compressor suction line.

(4) An alarm that sounds in the cargo control station and in the wheelhouse when any of the high pressure or high temperature switches under paragraphs (b)(2)(i) and (b)(2)(ii) of this section operate.

(c) A vessel carrying a methyl acetylene-propadiene mixture must have separate cargo piping, vent piping, and refrigeration equipment for methyl acetylene-propadiene that are segregated from other cargo piping, vent piping and refrigeration equipment on the vessel.

[CGD 74–289, 44 FR 26009, May 3, 1979; 44 FR 59234, Oct. 15, 1979; CGD 82–063b, 48 FR 4782, Feb. 3, 1983]

§154.1740 Vinyl chloride: Inhibiting and inerting.

When a vessel is carrying vinyl chloride, the master shall ensure that:

(a) Section 154.1818 is met; or

(b) Section 154.1710 is met, and the oxygen content of inert gas is less than 0.1% by volume.

§154.1745 Vinyl chloride: Transferring operations.

A vessel carrying vinyl chloride must meet the requirements of §151.50–34(g) through (k) of this chapter.

[CGD 95–012, 60 FR 48051, Sept. 18, 1995]

§154.1750 Butadiene or vinyl chloride: Refrigeration system.

A refrigeration system for butadiene or vinyl chloride must not use vapor compression unless it:

(a) Avoids any stagnation points where uninhibited liquid can accumulate; or

(b) Has inhibited liquid from the cargo tank added to the vapor upstream of the condenser.

§154.1755 Nitrogen.

Except for deck tanks and their piping systems, cargo containment systems and piping systems carrying nitrogen must be specially approved by the Commandant (CG–OES).

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 82–063b, 48 FR 4782, Feb. 3, 1983]

§154.1760 Liquid ammonia.

The master shall ensure that no person sprays liquid ammonia into a cargo tank containing more than 8% oxygen by volume.

Subpart E—Operations

§154.1800 Special operating requirements under Part 35 of this chapter.

Each vessel must meet the requirements of Part 35 of this chapter except §35.30–20.

§154.1801 Certificates, letters, and endorsements: U.S. flag vessels.

No person may operate a U.S. flag vessel unless the vessel has a Certificate of Inspection, issued under Subchapter D of this chapter, which is endorsed with the name of the cargo that it is allowed to carry.

§154.1802 Certificates, letters and endorsements: Foreign flag vessels.

(a) No person may operate on the navigable waters of the United States a foreign flag vessel, whose flag administration issues IMO Certificates, unless the vessel has:

(1) An IMO Certificate issued by the flag administration that is endorsed with the name of the cargo that it is